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Stand of Messmate Stringybark and Manna Gum—Mt. Cole State Forest.

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The Victorian Naturalist

Editor: **G. M. Ward**
Assistant Editor: **P. Gahan**

Vol. 86, No. 2 **6 February, 1969**

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Front Cover:

This photograph by courtesy of A.N.A.R.E., and taken by John Béchervaise, is of Genntoo Penguins near Erratic Point, Heard Island. It accompanied an article in the *Vict. Nat.* Vol. **79**, (8) p. 239.

Some West Australian Banksias

by L. FELL

Faced with the enormous richness of the West Australian flora it is rather hard to decide on which family to talk about; but in the south-west, banksias are visible to everyone and the identification key, by leaf shape, is easy to follow. There is the problem in that many of the best, flower late in spring or in summer. Coming west along Route 1 from Esperance, about a mile from the turn west, is a wide gravel scrape on the left; and here if you pull in, is *Banksia pulchella* about 3 feet in height, with yellow brushes, *not* pendant, and a small, nearly round cone. It is an attractive small shrub. A mile or two further on, in a patch of deep sand is the large bush, *B. speciosa*, with very long grey-green, deeply indented leaves. The brush is large, almost cone shaped, of pale yellow and silver-grey, with the flowers held outside the foliage. This is a spectacular tall bush, growing here *only* on deep sands. Anywhere along the uncleared roadsides one can find *B. repens* and *B. prostrata*, both prostrate forms. The Esperance variety of *B. repens* is almost mauve, as compared with that in the Stirlings, and the brush is longer. Between Esperance and Ravensthorpe, Bauri, (*Banksia nutans*) with its rabbit like cones held at the base of the stem and *B. sphaerocarpa*, with its close relation violacea (which has a small cylindrical wine coloured brush), can be found on sand plains by the roadsides. They grow to about 3 feet in height.

About nine miles east of Ravensthorpe, a gravel road turns left to Hopetoun. About one mile down this road is *B. lehmanniana*, growing as a dense attractive tall bush growing to about 4 feet 6 inches, with pale yellow brushes and big seed cones. Along this road also, can be seen the rare southern extension of the beautiful creeper *Marianthus pictus* and *Eucalyptus burdettiana* which is confined also to this area. At Jerramungup, still on the highway, turn left on Route 1 towards Albany. After about 30 miles, on the left, is a turn towards Bremer Bay, where if the Gnowangerup Shire has not totally destroyed the road verges, one can find *B. baxteri, B. dryandroides, B. coccinea, B. grandis,* and *B. quercifolia. B. baxteri* is a magnificent shrub of about 3 ft., with large golden flowers held well above the foliage. *B. grandis* and *B. dryandroides* are worth some discussion, being protean in their changes of ecology and form, and typifying the difficulties with some WA flora. *B. grandis* is found from Perth to near Esperance, within the 20″ isohyet. Growing in the Jarrah forest to nearly 50 feet as a tree, it can also be found along the limestone headlands of the south coast as a prostrate shrub; and yet again on sandplain near Bremer Bay as a small shrub 3 to 6 feet in height. On Cape D'Entrecasteaux, facing the westerly gales, it produces in November a magnificent dark green brush, from a base less than 3 feet high. At this stage the brush, which later changes to yellow, is a favourite food of the White-tailed Black Cockatoo. *B. dryandroides* (*Calyptorhynchus baudinii*) is less spectacular with a small yellowish brown brush, but very attractive foliage. Found in the Stirlings area, and eastward along the coast to the Gaird-

ner River, it ranges from over 3 feet high on sandplain to a prostrate shrub a few inches high on the ocean fringes; and a little more on the high peaks of the Stirlings. About 30 miles east of Albany, one passes the Many Peaks Range, towards which some side roads turn; and it is along these that *B. coccinea* grows as a small tree to about 35 feet. Strangely enough, these tall specimens seldom flower, and have no seed cones on them. There are a group of rather dullish semi-tree banksias in this area not discussed; but of course there are 30 varieties all told along this track. Nearer Albany are two more large attractive shrub banksias, *B. occidentalis* and *B. laevigata*, neither being plentiful. *B. occidentalis* is a delicate feathery shrub on sand, to about 20 feet, with a wine red brush, soon fading; whereas *B. laevigata* grows on the edge of swamps on the Gull Rock Rd. to a height of about 10 feet. Its brush is small, brown-violet in colour, and the leaves are stiff and prickly. Some of the coloured banksias have yellow forms as well, and these include *B. coccinea, B. occidentalis,* and *B. cayleyii.* Some interesting banksias grow on and around the Stirlings, 3 of which are endemic, and will be dealt with later.

* * * *

Darlimurla Area—A Botanical Survey

by Ellen Lyndon

This list of the ferns and flowering plants is by no means complete. I have not sufficient knowledge to attempt the grasses, rushes and sedges, for one thing, and I feel that there are people in the Club better fitted than I to deal with the orchids.

There are many gaps in the list where plants that should be in the area are missing, perhaps due to many years of clearing and firing. Early pictures of the area around Mirboo North and Darlimurla show the hills almost bare. The valleys of the watercourses are shallow so that the ferns were never protected by steep-sided gorges that a fire might jump. The filmy ferns are not there, and the Kangaroo Fern, so plentiful and lush in other parts of the Strzelecki where it sometimes clothes the introduced willows from top to bottom, is conspicuous by its absence.

The list is compiled from many excursions into the bush in perhaps a four-mile radius of the township, say from the Thorpdale road across to the Boolarra-Mirboo North road. It could no doubt be greatly increased by excursions in the spring when most of the plants are in flower. The Compositae, for instance, look very weak. There must be many more. I hope Club members will build up my contributions. Where families are listed, but no species given, I have added them because I feel sure the species will turn up if we can keep pace with the Forests Commission's clearing rate.

For one or two things I have gone outside the road boundaries mentioned above. *Drimys lanceolata* I know now from only sturdy specimens on the road to Boolarra about a mile or so outside Mirboo North. *Cryptostylis subulata*

in what is now cleared country south of the Thorpdale road behind Mirboo North. *Lycopodium deuterodensum* also south of this road in the vicinity of the Pumping Station. Others may know them in different places. I suggest that Mr. Graham Marshall be contacted as he has also done considerable searching in this country.

I have endeavoured to arrange this list in the same order as that given in Mr. Willis's *Handbook to Plants in Victoria,* where it applied; and for the rest the University of Melbourne *"Families and Genera of Victorian Plants"*; not forgetting, of course, Miss Galbraith's *"Wildflowers of Victoria"* at my elbow.

PTERIDOPHYTA:

OSMUNDACEAE
Todea barbara.

SCHIZAEACEAE

GLEICHENIACEAE
Gleichenia microphylla
Sticherus lobatus
S. tener.

HYMENOPHYLLACEAE

CYATHEACEAE
Cyathea australis.

DICKSONIACEAE
Dicksonia antarctica

DENNSTAEDTIACEAE
Culcita dubia
Pteridium esculentum
Histiopteris incisa
Hypolepis punctata.

LINDSAYACEAE
Lindsaya linearis.

ADIANTACEAE
Adiantum aethiopicum
Pteris tremula
Pellaea falcata.

GRAMMITIDACEAE

POLYPODIACEAE
Microsorium diversifolium.

ASPLENIACEAE
Asplenium flabellifolium.

ATHYRIACEAE

ASPIDIACEAE
Rumohra adiantiformis
Polystichum proliferum.

BLECHNACEAE
Blechnum cartilagineum
B. nudum
B. procerum
B. minus.

LYCOPODIACEAE
Lycopodium deuterodensum.

PSILOPHYTACEAE

MONOCOTYLEDONEAE:

GRAMINEAE
Tetrarrhena juncea
Poa australis.

CYPERACEAE
Gahnia radula.

RESTIONACEAE
Restio tetraphyllus.

LILIACEAE
Xanthorrhoea
Lomandra filiformis
Thysanotus patersonii
Dianella tasmanica
D. revoluta
Stypandra glauca
Burchardia umbellata.

IRIDACEAE
Diplarrena moraea.

URTICACEAE
Australina muelleri
Urtica incisa
Parietaria debilis.

PROTEACEAE
Banksia spinulosa
Lomatia ilicifolia
L. fraseri
Hakea ulicina
H. sericea.

SANTALACEAE
Exocarpos cupressiformis.

LORANTHACEAE
Amyema pendula
Muellerina eucalyptoides.

CARYOPHYLLACEAE
Stellaria pungens
S. flaccida.

RANUNCULACEAE
Clematis aristata
Ranunculus lappaceus.
WINTERACEAE
Drimys lanceolata.
MONIMIACEAE
Hedycarya angustifolia.
LAURACEAE
Cassytha melantha.
CRUCIFERAE
DROSERACEAE
Drosera auriculata.
CRASSULACEAE
Crassula sp.
BAUERACEAE
Bauera rubioides.
PITTOSPORACEAE
Marianthus procumbens
Bursaria spinosa
Billardiera scandens
B. longiflora
ROSACEAE
Rubus parvifolius
Acaena anserinifolia.
MIMOSACEAE
Acacia stricta
A. dealbata
A. melanoxylon
A. verniciflua
A. myrtifolia
A. verticillata.
PAPILIONACEAE
Pultenaea stricta
P. scabra
P. juniperina
Dillwynnia sp.
Goodia lotifolia
Platylobium formosum
Indigofera australis
Daviesia latifolia
Hovea heterophylla
Glycine clandestina
Lotus sp.
GERANIACEAE
Geranium solanderi
Pelargonium australe.
OXALIDACEAE
Oxalis corniculata.
LINACEAE
Linum marginale.
RUTACEAE
Zieria smithii
Phebalium sp.
TREMANDRACEAE
Tetratheca ericifolia
POLYGALACEAE
Comesperma volubile.
EUPHORBIACEAE
Amperea xiphoclada.
STACKHOUSIACEAE
RHAMNACEAE
Pomaderris aspera
P. elachophylla.
DILLENACEAE
Hibbertia astrotricha.
HYPERICACEAE
Hypericum gramineum.
VIOLACEAE
Viola hederacea.
THYMELAEACEAE
Pimelea axiflora.
MYRTACEAE
Eucalyptus cypellocarpa
E. obliqua
E. baxteri
E. radiata
E. sieberiana
E. ovata
E. viminalis
Leptospermum juniperinum
L. ericoides
Melaleuca squarrosa
M. ericifolia.
ONAGRACEAE
Epilobium sp.
HALORAGIDACEAE
Haloragis tetragyna
H. micrantha.
ARALIACEAE
Teighemopanax sambucifolius.
UMBELLIFERAE
Hydrocotyle sp.
EPACRIDACEAE
Epacris impressa
Sprengelia incarnata.
MYRSINACEAE
Rapanea howittiana.

GENTIANACEAE
Centaurium pulchellum.
APOCYNACEAE
CONVULVULACEAE
Dichondra repens.
BORAGINACEAE
Myosotis sp.
Cynoglossom latifolium.
LABIATAE
Prunella vulgaris
Mentha sp.
Prostanthera lasianthos.
SOLANACEAE
Solanum nigrum (doubtfully native)
S. aviculare (or *lacinatum*?)
SCROPHULARIACEAE
Veronica calycina.
BIGNONIACEAE
Pandorea pandorana.
RUBIACEAE
Soprosma quadrifida
C. hirtella
Asperula sp.
CAPRIFOLIACEAE
Sambucus gaudichaudiana.
CAMPANULACEAE
Wahlenbergia sp.
GOODENIACEAE
Goodenia ovata
G. lanata.
STYLIDIACEAE
Stylidium graminifolium.
COMPOSITAE
Olearia lirata
O. argophylla
Senecio lautus
S. odoratus
Gnaphalium sp.
Cotula coronopifolia
C. australis
Bedfordia salicina
Helichrysum dendroideum = *bracteatum*
Cassinia aculeata
C. spectabilis
Helichrysum scorpioides.
ORCHIDACEAE
Cryptostylis subulata
Caladenia patersonii
Eriochilus cucullatus
Chiloglottis gunnii & *C. reflexa*
Pterostylis longifolia, nutans, alpina & *parviflora.*
[Either *Thelymitra grandiflora* or *media* made a great show along the roadsides near Darlimurla this past season.]
Dipodium punctatum.

WANTED

Susan Beattie, the Secretary of the Hawthorn Junior F.N.C. is anxious to obtain copies of *Wild Life,* edited by the late Crosbie Morrison.

The particular issues wanted are:

1940—August, September, October, November.
1941—February, May, August, November.
1942—July, August.
1943—April, August.
1949—September.

Any member who may be able to help can contact Susan at—

2 Clyde Street, Glen Iris 3146.

Phone 50 5263.

Corrections

In the report on the General Meeting for December 1968, given in *Vict. Nat.* for January **86**; p. 25, par. 3, "Miss Mary Bull" should read "Miss Mary Ball".

In the report on the General Meeting for September 1968, given in the *Vict. Nat.* for October **85**; p. 301, par. 5, the words "There are no members of the *Protea* family" should read "There are only two members of the *Protea* family".

The Genus Corybas in Victoria

by PETER UHLHERR

The genus *Corybas* Salisb. contains upward of 50 species. These are distributed widely from the Himalayan foothills east to the Philippines and south east through the Malay Archipelago, New Guinea, Australia and New Zealand. The genus also occurs in the Polynesian islands.

Holttum (7) lists 5 species for Malaysia. Rogers (8) states that the greatest development of *Corybas* appears to occur in New Guinea, where 19 species have been recorded. Australia has 9 species and New Zealand has 7 (6). Of the 7 New Zealand species 3 are related to Australian species and 4 to Malayan species. It seems unusual that none of the species occurring in Australia resemble the Malayan species. Hatch (6) concludes that the Australian forms probably became isolated very early in the development of the genus and so differentiated independently. The 9 Australian species are listed with authors and synonyms in Table 1. Their distribution by states and their flowering periods are given in Table 2.

Of the 9 Australian species, 5 occur in Victoria and none of these are endemic to that state. Willis (9) lists references to drawings and photographs of all Victorian species. However, since the publication of Willis' Handbook in 1962, a number of illustrations of *Corybas* have appeared. References to these more recent illustrations are listed in Table 3. This list is not necessarily exhaustive.

Despite the many new and excellent illustrations listed above, the author feels that identification of the species

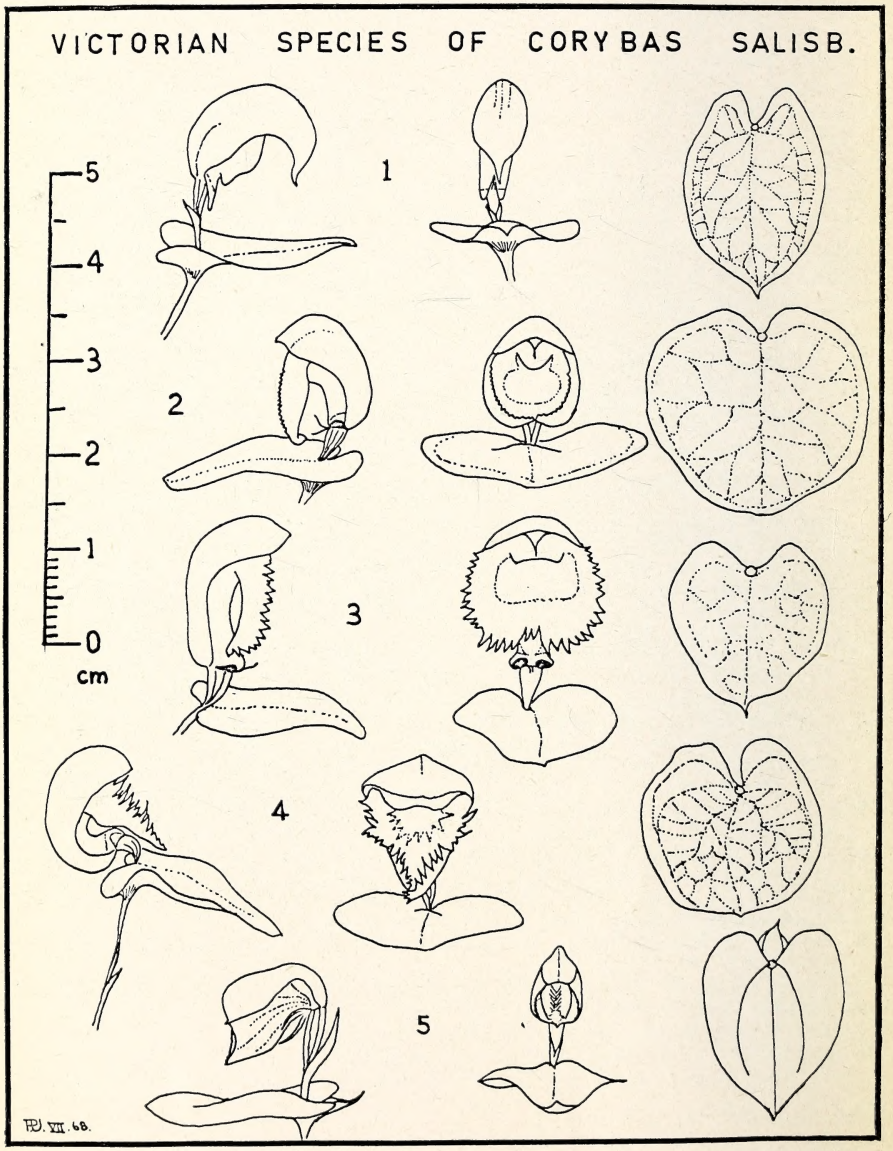
Table 1

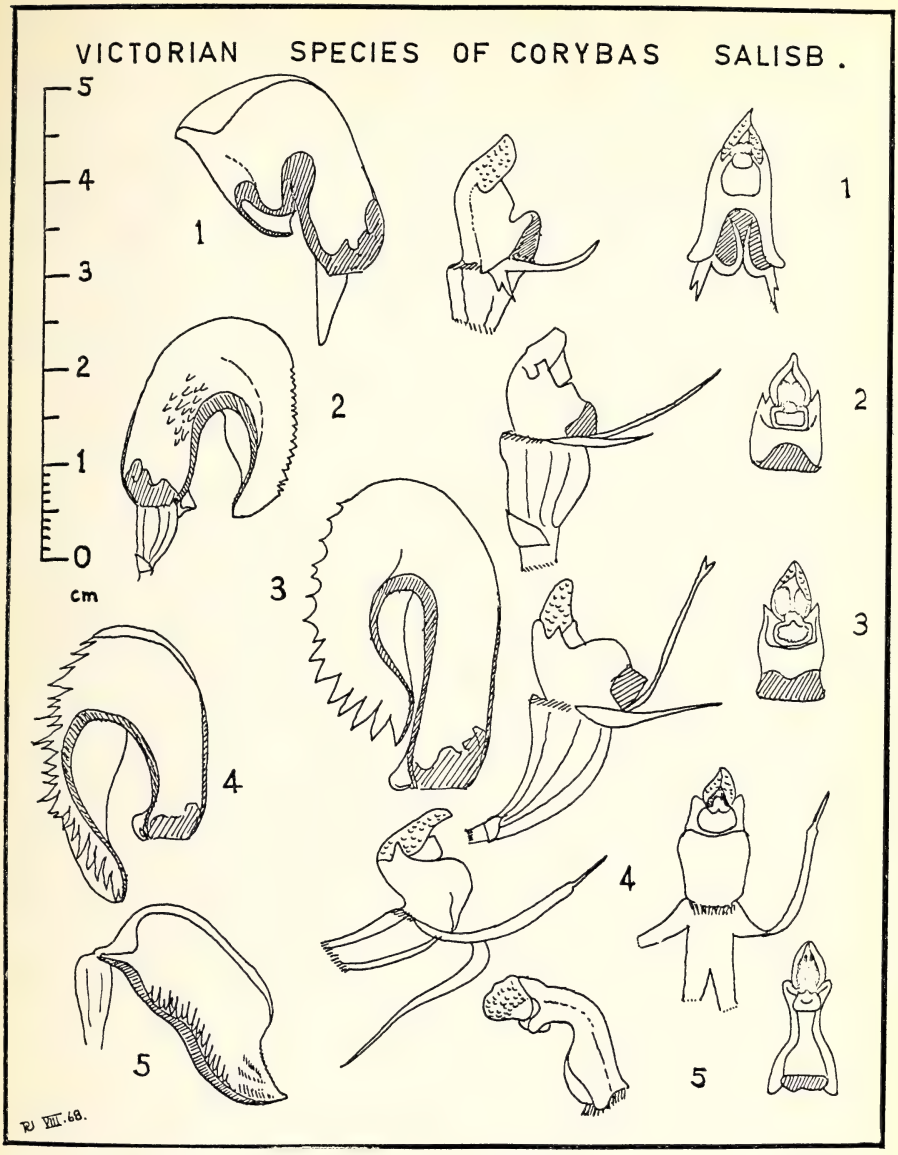
CORYBAS: List of species and synonyms

1. *Corybas abellianus*, A. W. Dockrill, Nth. Qld. Nat., **24** (112), 1 (1955).
2. *Corybas aconitiflorus*, Salisb., Parad. Lond., (1805), t83.
   Corysanthes bicalcarata, R. Br., Prodr. Flor. Nov. Holl., 328 (1810).
   Corysanthes cheesemannii, Hook. f. ex T. Kirk., Trans. N.Z. Inst., **3**, 180 (1871).
3. *Corybas diemenicus* (Lindl.) H. M. R. Rupp et W. H. Nicholls, Proc. Linn. Soc. N.S.W., **53**, 551 (1928).
   Corysanthes diemenica Lindl., Gen & Spec. Orchid. Plant., 393 (1840).
   Corysanthes fimbriata, R. Br. var. *diemenica* (Lindl.) Benth., Flor. Aust. **6**, 351 (1873).
4. *Corybas dilatatus*, (H. M. R. Rupp et W. H. Nicholls), H. M. R. Rupp, Proc. Linn. Soc. N.S.W., **53**, 551 (1928).
   Corysanthes dilatata, H. M. R. Rupp et W. H. Nicholls, Proc. Linn. Soc. N.S.W., **53**, 87 (1928).
5. *Corybas fimbriatus* (R. Br.) Reichenb. f., Beitr. syst. Pflk., 42 (1871).
   Corysanthes fimbriata R. Br., Prodr. Flor. Nov. Holl., 328 (1810).
6. *Corybas fordhamii* (H. M. R. Rupp) H. M. R. Rupp, *Vict. Nat.*, **59**, 61 (1942).
   Corysanthes fordhamii H. M. R. Rupp, *Vict. Nat.*, **58**, 83 (1941).
7. *Corybas pruinosus* (Cunn.) Reichenb. f., Beitr. syst. Pflk., 43 (1871).
   Corysanthes pruinosa Cunn., N.S.W. Mag., **1**, 41 (1833).
8. *Corybas undulatus* (Cunn.) H. M. R. Rupp et W. H. Nicholls, Proc. Linn. Soc. N.S.W. **53**, 551 (1928).
   Corysanthes undulata Cunn., N.S.W. Mag., **1**, 41 (1833).
9. *Corybas unguiculatus* (R. Br.) Reichenb. f., Beitr. syst. Pflk., 43 (1871).
   Corysanthes unguiculata R. Br., Prodr. Flor. Nov. Holl., 328 (1810).
   Corysanthes Matthewsii Cheesemn., Trans. N.Z. Inst., **31**, 351 (1899).
   Corybas Matthewsii (Cheesmn.) Schltr., Fedde. Repert, **19**, 23 (1923).

in Victoria would be greatly facilitated by comparative diagrams in a single figure. Such diagrams are given in *Figure 1* which shows a flower of each species from the side and from the front. The shape of the leaf is also shown. This information, although sufficient for identification, is supplemented by *Figure 2*, which shows the details of column structure and longitudinal sections of labella.

A longitudinal section appears to be tbe best way to draw the labellum shape since it is impossible to flatten the labellum without damage in all species of *Corybas*. The external floral characteristics which may be used to separate species are compared in *Table 4*.





Drawings by Author

← **Figure 1**

↑

Figure 2

Table 2

Distribution and Flowering Periods of Australian *Corybas*
(Roman numerals refer to months of the year)

Species	Qld (5)	NSW (4)	Vic (2)	Tas (3)	SA (8)	WA (1)	NZ (6)
C. abellianus	II-V	—	—	—	—	—	—
C. aconitiflorus	III-V	V-VII	VI-VIII	V-VII	—	—	V-VIII
C. diemenicus	—	VII-VIII	VI-VIII	VI-IX	VI-VIII	—	—
C. dilatatus	—	VI-VIII	VII-IX	VII-IX	VI-VII	VI-VIII	—
C. fimbriatus	IV-V	IV-VII	VI-VII	IV-VII	—	—	—
C. fordhamii	VII-VIII	VII-VIII	—	—	—	—	—
C. pruinosus	—	IV-VII	—	—	—	—	—
C. undulatus	V-VI	V-VI	—	—	—	—	—
C. unguiculatus	—	VI-VII	VII-VIII	VI-VIII	VII-VIII	X	VII-VIII

Table 3

Illustrations of Victorian *Corybas*
(In addition to those given by J. H. Willis (9))

C. aconitiflorus
Dockrill, A. W., Aust. Plants, **3** (26), 282 (1966).
Cady, L. I., Aust. Plants, **3** (26), 247 (1966).
Gray, C. E., Vict. Native Orch. (1966) tp 29.

C. diemenicus
Cady, L. I., Aust. Plants, **3** (26), 247 (1966).
Gray, C. E., Vict. Native Orch., (1966) tp 26 col.
————, Vict. Nat. **84** (10), tp 318 (1967).
Upton, W. T., The Orchadian, **1** (12), 157 (1965).
Goldsack, H., in Cotton B. C. South. Aust. Nat. Parks and Wildlife Reserves, (1964), p. 55.
Firth, M. J., Aust. Plants, **3** (26) tp 244 col. (1966).

C. dilatatus
Gray, C. E., Vict. Native Orch. (1966) tp 28.
Goldsack, H., in Cotton B. C. South. Aust. Nat. Parks and Wildlife Reserves, (1964), p. 55.
Cady, L. I., Aust. Plants, **3** (26), 247 (1966).
Palmer, P., Aust. Plants, **3** (26) (1966) t cover col.
Blackmore, J. A. P., The Orchadian, **2** (6), 77 (1967)

C. fimbriatus
Dockrill, A. W., Aust. Plants, **3** (26), 281 (1966).
Cady, L. I., Aust. Plants, **3** (26), 247 (1966).
Gray, C. E., Vict. Native Orch. (1966) tp 30 col.
Firth, M. J., Native Orch. Tas. (1965) tp 8.

C. unguiculatus
Upton, W. T., The Orchadian **1** (6), 67 (1964).
Gray, C. E., Vict. Native Orch. (1966), tp 27 col.
Firth, M. J., Native Orch. Tas. (1965) tp 8.

Table 4

Main Features for Identification

Species	Leaf	Flower habit	Labellum
Corybas aconitiflorus	Heart shaped; reticulate venation; purple underside	Stalked, carried quite high above the leaf; appears nodding.	Tubular, the opening concealed by the dorsal sepal; opening with sharply reflexed margins, minutely ciliate; tube prominently spurred.
Corybas diemenicus	Oval-lobed; reticulate veins; frosty-white underside; may be rather large (to 3·5 cm)	Sessile, very squat on the leaf.	Reflexed about the middle; posterior part tubular and equal in length to the anterior lamina; lamina margins denticulate, inturned for their whole length.
Corybas dilatatus	As for *C. diemenicus* but usually smaller (to 2 cm) and frequently mucronate.	Sessile, but carried erect above the leaf; very open appearance.	Very sharply reflexed about the middle; tubular part longer than the lamina; lamina with spreading, coarsely dentate margins.
Corybas fimbriatus	As for *C. diemenicus*	Sessile and squat on the leaf, often tilted backwards.	Reflexed about the middle; tubular part shorter than the lamina; lamina margins deeply fimbriate and inturned only near the tip of the lamina.
Corybas unguiculatus	Heart shaped; three nerved, prominent on underside; purple-grey below.	Stalked, carried quite high above the leaf; nodding appearance.	Labellum almost wholly tubular with a small opening which is not concealed by the dorsal sepal; the opening has extremely minutely denticulate margins; several rows of stick-like glands along the centre of the labellum, almost to its tip.

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1. Erickson, R. (1965)—Orchids of the West. Paterson Brokensha, Perth.
2. Ewart, A. J. (1930)—Flora of Victoria. Victorian Government, Melbourne.
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4. Gordon, E. G. (1965)—The Orchadian **2** (2): 25.
5. ————, (1967)—*ibid.* **2** (7): 98.
6. Hatch, E. D. (1947)—Trans. Roy. Soc. N.Z., **76** (4): 574.
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Notes on the Aborigines of the Donald District‡

by Aldo Massola*

In April, 1843, a party consisting of three white men and two aborigines, left Hall's Station, west of Talbot, to explore the dry country to the north of the Pyrenees.

The two aborigines were to guide the white men to a large lake, which they said existed in that direction. The white men, J. B. Hall, E. McNeill and J. Darlot, were anxious to see this lake, for, if it did exist, they would "take up" the lands surrounding it.

The natives, however, had warned the white man that this lake was frequented by a monstrous "several miles long" snake, called Mindie, which was in the habit of devouring, with equal propensity, both "emus and blackfellows"; and the lubras of the tribe bewailed the party's departure with much lamentation and weeping, asserting that they would never return.

Nevertheless, the party did return, for after following the dry bed of the Avon River for one and a half days without finding any sign of water, or even moisture, and not believing that any existed further north, despite their two native guides' assurances, the party turned west, reached the Wimmera River, and made their way back home by ascending its course. Mindie thus remained in undisputed possession of the lake.

The belief in the existence of this monster was universal amongst the Victorian tribes. The Yarra River people described it as having a large head and two ears, with three fangs protruding from its tongue, and claimed that it hissed-out a white dust laden with all kinds of deadly diseases. It travelled with the speed of lightning, they said, by stretching itself over the tree-tops for a distance of between 20 and 30 miles. It was believed by them to have its lair on a mountain called *Bukker-panyool,* (the Middle-mountain, now Buckrabanyule) and to only drink from a creek called *Neel Kunnung* (Nasty or Poisoned Creek). The ground for a distance around the mountain was reputed to be so hard that no rain could penetrate it, and to be covered with small, hard, hail-like substance. This is probably a reference to the crystals of sulphate of lime found on the clay-pans in the Mallee, though not in the immediate vicinty of the mountain. The natives also claimed that the only trees growing thereabout were Mulin, this being probably the Yarra tribe's version of the Mallee, a tree which did not occur in their own country.

Though it would eat any man who ventured into its domain, Mindie only went forth hissing-out diseases when ordered to do so by Bunjil, the Great Man, or Creator, who sometimes thus employed him to punish wicked blackfellows. Mindie was also under orders to obey the members of a certain family, Munnie Brumbrum, who were the only humans who could live in that aweful country with impunity.

The Murray River tribes also dreaded Mindie, and attributed most diseases to the white powder which hissed out of its mouth. Whirlwinds, of which they had a superstitious dread, were

* Flat 4, 18 Wolseley St., Mont Albert 3127.

‡ In preparing these notes, which formed part of a lecture delivered before the Donald History and Natural History Group on 6/9/68, I received much assistance from Ron P. Falla, of Litchfield, and I here wish to record my thanks to him.

believed by them to be caused by the movements of Mindie's tail.

Looking objectively at these beliefs, it seems clear that the aboriginal inhabitants of this region had invented Mindie in order to protect themselves from enemy raids, much in the same way as a being called Loan was said to protect the people living to the north of Wilson's Promontory.

Buckrabanyule (Bukker-panyool) is a three-peaked hill a little to the east of Charlton, which is on the Avoca River. The Avoca River is believed to have been the boundary between two tribes, the Jajawurong (to the east), and the Wotjobaluk (to the west). However, this tribal demarcation is only arbitrary, because it appears that the sub-roup who "owned" the mount formed part of a Wotjobaluk group. As far as can be ascertained this group's name was Jaara, and its territory included all the land (and water and game) encompassed within a rough line between Buckrabanyule, Emu, Stuart Mill, Marnoo, Birchip, Wycheproof, and back to Buckrabanyule. This was, in fact, the territory over which Mindie roamed. The family, or sub-group to whom Buckrabanyule was allotted, was probably called Panyool-boluk, the Hill-people; and Munnie Brumbrum was probably only the local name for two mythical heroes, generally known to the N.W. Tribes as Bram-Bram-Bult, the Two Bram-bram. These two heroes* eventually became the two stars known as The Pointers, but while on earth, they performed all kinds of mighty deeds.

There is no doubt that the whole of this territory, despite Mindie, and dry as it is at times, did support a fairly large aboriginal population. This is indicated by the many occupational traces left behind by them, in the guise of canoe and shield trees, rock water-holes, oven mounds, and camp sites, as well as the innumerable stone implements either held by local collectors or still awaiting to be picked up. Close to the foot of Buckrabanyule, on Mr. Jack Mitchell's property, there is a beautiful specimen of a tree from which timber for a shield has been removed. In the near vicinity there are several oven mounds, marking native cooking places, which means that water was not far distant, although none is visible now, due, probably, to the clearing and tilling of the land, which often results in the destruction of native springs or soaks. Even the spring of mineralized, and therefore nasty-tasting water on the south-east flank of the hill only occasionally runs. Incidentally, this spring must have, in aboriginal days, given forth a lot of water, since it formed a well-defined bed down the side of

Shield Tree near Buckrabanyule.
photo: Author.

* See my book, *Bunjil's Cave*, for the adventures of these two brothers.

the hill. It must have been Neelkunnung, the nasty, or poisoned creek from which Mindie drank.

One of the main camps of the Jaare is on a low rise about three miles west of Charlton, a little to the north of the present highway to Donald. On the eastern flank of this rise there are numerous outcrops of granite, one of which contains a beautiful example of those rockwells, excavated by nature and helped by the aborigines, which were so precious to them at the time of the year when ordinary waterholes had dried up.

The native name of this rockhole is *"Youanduk",* meaning a-basin-in-a-rock, from *youan,* or *yowang,* "hill", and therefore "rock", and *duk,* "frogs", this word having associations implying water and rain.†

Below the granite boulders there is a sandy stretch, many hundreds of yards in extent; and there is the evidence to prove that the place was a camping site. Thousands of stone fragments, chips, flakes and cores, are strewn everywhere, and amongst them there are still many implements, chiefly the pigmy kind called by ethnologists microliths. The larger, and more obvious stone tools, the axes, grinders and hammers have, however, long since been collected by local farmers and other interested persons.

In looking at the great extent of this campsite, it becomes obvious that the water from the rock hole would have been insufficient to quench the thirst of all. But there are a number of small depressions in and around this campsite; and these no doubt mark the site of former soaks, from which additional water could be obtained.

This camp was ideally situated on the native track which ran from the numerous campsites along the Avoca River to the site of the great tribal gatherings at Lake Buloke. The first day's trek west from Youanduk would have been about five miles to Lake Wooronook, where there are some ovens and now ploughed-out campsite. The next stop was at Mount Jeffcott, a distance of about five miles, where the are more ovens. The Mount served as a direction finder. The next stretch was of eight miles to the very large campsite on the sand dunes on the south-east corner of the old bed of Lake Buloke. The Borung Highway bisects this camp, and it is interesting to see that this modern highway roughly follows the old native path.

The Lake Buloke camp was probably known to the aborigines as *Banyenong* (from which both Banye-

† See my book, *Aboriginal Place Names.*

Youanduk Rock Hole, 3 miles west of Charlton.
(Note scale compared with camera bag.)

photo: Author.

nong and Banyena take their names). It comes from *Banye,* "a burning", but only applicable to roots and stumps, and *Nong,* which denotes the past. This strange name referred to a legend (for details of which see *Bunjil's Cave*) which has it that the lake's depression was caused by the burning out of the roots of a giant pine tree. This depression later filled with water, and thus became Buloke. The Lake, a name also suggestive of the cry of the bullfrog, which inhabits the shallows.

During the wet period of about 5,000 years ago, if not later, the lake was much greater in extent, as witnessed by the continuous line of sand dunes, and old shore, stretching from just north of Donald almost to Corack, and from Banyenong in the east, almost to Massey in the west. There are great concentrations of oven mounds, or native cooking ovens, both in the south of this former bed, and on its northern periphery, at what are now Box Swamp and Mini Swamp. The ovens around this former lake-bed and along the Richardson River have been carefully mapped by Barry Golding, of Donald, to whom I wish to record my indebtedness. He must have spent weeks on this research, the results of which he so freely placed at my disposal.

The campsites, or "blows", upon which stone implements can be collected are generally found far removed from the oven mounds. Just why this should be is one of the unsolved mysteries of the pre-history of Victoria. In a former paper (*Vict. Nat.* **83** (6), June 1966) I have discussed these mounds as they occur in this State, and all I need state now is that the local evidence around Lake Buloke suggests that the oven mounds antedate the campsites. The oven mounds are on the old shore of the lake; often in places which are now dry. The campsites are either close to present semi-permanent water, such as at York Plains, Lake Cope Cope, Lake Murrumbeet and Lake Wooroonook; or else they are close to surface water or soaks, such as at Banyenong, at the little blow south of it on the sand dunes above Dunstan's Lake, at Creswick's Well, at Youanduk, and on the Brothers Barrance property near Donald.

What do we know of the people who lived at these camps and hunted upon these plains? A few short lists of words, one or two legends, and some place-names. Our lack of know-

Youanduk campsite. (Rockhole on rise in left of photograph.)

photo: Author.

ledge is aptly summarized in *Past and Present,* a booklet published by the Donald Times in 1926, in which it is stated that:

"At one time tribes of 'blacks' lived around the River Richardson . . . the natives caused but little trouble to the white man. Their bellicose steam they 'let off' on one another, and the tribal fights were interesting rather than fear-inspiring. Gradually the 'blacks' moved away or died and left the country to the invading whites".

However, we do know that before they "moved away or died", a number of aborigines were employed by the squatters, first in stripping bark from trees for hut-roofs, and later as shepherds and stockmen. This fact is stated in several of the early records, including the very interesting diary kept by Thomas Guthrie the First, and now in the possession of his grandson, Mr. Oliver Guthrie, of Rich-Avon, who kindly drove me to several of these early "scarred trees", as well as to numerous oven mounds and to at least one "canoe tree", still extant on his ancestral Guthrie Estate, and all of which he has gone to great pains to preserve.

Some of the aborigines who later became stockmen now repose in the little "aboriginal stockmen cemetery", unfenced and only marked by an upright cement post, in one of Mr. Alec Russell's paddocks, quite close to Donald. Although little known, even to the local people, this cemetery should rank high amongst the few aboriginal antiquities left in this part of the State.

The first white men to settle in the district are believed to have been the Creswick brothers. They arrived in February, 1844, and built their hut on the western side of the River Avon, where Gray's Bridge now is, a picturesque locality known to the aborigines as *Koruckubeal,* "Where-the-red-gum-flowered". In 1846 (or 1847) the brothers having married, the run was divided into two, one brother, John, erecting his homestead close to a small reed-covered swamp, simply known to the natives as *Murt,* "waterhole", which they knew never ran dry. In 1866 a bore was sunk to a depth of 54 feet on this waterhole, and although now disused, its site is marked by an engraved cement post, the inscription on which states that the bore did good service during the droughts of 1881, 1902, 1915-16, when it held the only available water for miles around.

The other brother, Charles, built his home on a sand ridge close to the eastern bank of the river, in which, at this point, there was a deep waterhole. This was the York Plains homestead, and the sand ridge it was built upon was the Koruckubeal native camp. The homestead has long since crumbled, but stone implements left behind by the aborigines can still be found there.

Then in October, 1844, the brothers James and John Donald and Robert Macredie, guided by natives, reached Lake Buloke, thus at last discovering the "large lake". Mindie, the monster snake, had apparently discreetly retired, because it was not seen. Soon, claims were staked, and the entire land surrounding the lake was occupied by squatters.

The "king" of the local aborigines appears to have been individual who became known as Johnny. Both he and his principal lubra, Mary, were presented with "King plates" by William, the youngest of the Donalds, who had in the meantime joined his brothers at the lake. No doubt King Johnny presided over what is believed to have been the last gathering of the local tribes, which took place at Thos. Scott's Rich-Avon West Station in 1866. The meeting lasted a week, and about 200 tribesmen from the Avoca, Richardson and Wimmera Rivers, are

said to have been present. King Johnny died on 29th January, 1883, and was buried in the Donald cemetery.

The next in line of Royal Succession was Johnny's nephew, who was known as Big Bob, or Murdering Bob, or Morton Plains Bobby. King Robert of Morton Plains died at the Ebenezer Mission Station, north of Dimboola. on 10th April, 1896, aged about 70. He was buried in the Station's cemetery. The next King was Anthony Anderson, "King of Birchip, Morton Plains, Donald and Surrounding Country". He died at, and was buried at, the Coranderrk Aboriginal Station, near Healesville, on 14th March, 1914, believed to have been about 74 years of age. The last of the Jaara was Robert Kinnear of Charlton, who won the Stawell Gift in 1883. He died at Antwerp, on the Wimmera River, when aged about 80 on 6th January, 1935.

While most aborigines of Victoria appear to have been sport-minded, as witnessed by the honours gathered by the many native football and cricket teams, the Jaara seem to have exceeded them all at footrunning and horsemanship. As well as Robert Kinnear there was Black Mattie Hines, who combined footrunning and horse riding, and who won some important flat races and steeplechases. Jacky-Jacky, another local aboriginal, won a horse riding event, Tilting the Ring, and the 300 yards foot race at the Donald Sports on 4th Janaury, 1868. Black Robert Macredie (named after Robert Macredie, the pioneer) was a very fast runner, said to be able to do the 100 yards in under 10 seconds; he won the 200 yards at the Donald Sports in 2nd January, 1869. He was also a splendid horseman. On 10th April, 1878, at the Warracknabeal Sports, the aborigines were reported "to be holding their own" at several events.

After this time, however, they became fewer and fewer, and gravitated towards the Aboriginal and Mission Stations, where their tribal identities were lost, and where their half-caste descendants became absorbed into "The Aborigines of Victoria".

A Mammal Survey of Stockman's Reward*

by R. Fryer† and I. Temby†

Introduction

Stockman's Reward is a flood plain formed at the junction of Arnold's Creek and The Big River about 23 miles north-east of Marysville on the Big River road. A swampy valley has evolved about 1,800 feet above sea level and the hillsides rise suddenly and steeply from the edge of the valley (See Figure 1). Approximately eight hundred acres were surveyed and a comparison made between the animals found on the four hundred and fifty acres of flat valley and those found on the three hundred and fifty acres of dry hillside. Three field trips, one in May 1967, one in May 1968 and one in June 1968, were conducted in the area. Rain fell frequently but the weather, on the whole, was fair. Snow fell in the higher districts and the overnight temperatures ranged from 30°F to 38°F. Of the fifteen days spent on this survey, there were eleven nights of detailed spotlighting, eight days of trapping and one day of collecting and identifying plant specimens.

Considerable land use has occurred in the area and Stockman's Reward has a long history. The name came from a stockman who apparently found his "reward" there in the form of gold. A large amount of mining has taken place there, evident by the cleared area in front of the hut and the many disused mine shafts scattered about the valley. Many trees have been removed for timber but the actual survey area has not been subject to timber cutting for many years.

Grazing occurs intermittently whenever the snow is too deep for the farms in the Matlock area, but the area is otherwise visited only occasionally. The native mammals are therefore largely free from interference by man.

Topography and Flora

The flood plain area has a layer of rich soil up to two feet thick over deep alluvial gravels. This soil, which in places was always swampy, supported a wet sclerophyll-type vegetation. There was a thick ground cover of Tussock Grass (*Poa caespitosa*) in the cleared area around the hut, replaced in other areas by a Sedge (*Carex* species) and Long Mat Rush (*Lomandra longifolia*). The introduced Blackberry (*Rubus fruticosus* group) and the Molucca Bramble (*Rubus moluccanos*) were found in isolated localities throughout the area.

Four species of fern existed on the flood plain. Mother Shield Fern (*Polystichum proliferum*) and Fishbone Water Fern (*Blechnum nudum*) being very abundant wherever they were found, while the Rough Tree Fern (*Cyathea australis*) occurred only in limited numbers. Austral Bracken (*Pteridium esculentum*) was common throughout the flood plains.

Blackwood (*Acacia melanoxylon*) was very plentiful beside the creek where it grew to a height of fifty feet. It also occurred in pure stands of up to a hundred trees. Lightwood (*Acacia implexa*), though much less abundant than the former, was also widespread. Silver wattle (*Acacia*

* This report was originally submitted as a project to the Science Talent Search 1968.

† Mammal Survey Group, F.N.C.V., C/- Secretary, 40 Howard Street, Reservoir 3073.

dealbata) was scattered throughout the flood plain. Very many of the Silver Wattles found were dead, probably because of an infestation of borers, as flight holes attributable to these insects were seen in the trunks. Prickly Teatree (*Leptospermum juniperinum*) grew immediately beside the creek.

The Eucalypts were the most noticeable components of the habitat. Six species were found on the flood plains. Candlebark (*Eucalyptus rubida*), Swamp Gum (*E. ovata*), Manna Gum (*E. viminalis*), Narrow-leafed Peppermint (*E. radiata*), River Red Gum (*E. camaldulensis*), and Red Box (*E. polyanthemus*).

The hillsides are generally of grades of about one in five and the shallow topsoil is a reddish coloured clay, with battered sandstones protruding in several places. There was very little ground cover. Vegetation here consisted of the Hook Sallow Wattle (*Acacia mucronata* var. *dissitiflora*) which was very prolific on the drier slopes, Elderberry Panax (*Tieghemopanax sambucifolius*) occurred in conjunction with the Hook Sallow Wattle. Forest Wire-grass (*Tetrarrhena juncea*) entangled all the other hill vegetation. Silver Wattle also occurred extensively on the slopes in considerable numbers. Long Mat-rush (*Lomandra longifolia*) was dominant in the damp gullies intersecting the slopes.

Three eucalypts occurred on the hillsides. The commonest on the drier slopes was the Narrow-leafed Peppermint. Red Box (*E. polyanthemos*) was found scattered through the stands of Peppermint. Manna Gum, where found in hillside situations, usually had a very thick butt, twisted and gnarled, quite different from the Manna Gums of the flats, which were tall, straight trees up to a height of about one hundred and fifty feet.

Methods used in Surveying

Because of the diversity of mammals found in the area it was necessary to employ several overlapping methods of surveying. The most productive means was spotlighting at night. Most native mammals are nocturnal and spotlighting provided the best opportunities of observing the slower moving species. Spotlighting was generally begun each night at twilight and the two "Big Jim" spotlights were used.

Most spotlight observations were of possums, and two species were found very easily by their eye reflections. These were the Greater Glider and the Ringtail Possum, whose eyes appear white and red respectively in the light from spotlight beams. It was necessary to listen for the other possums, especially the Bobuck and the Yellow-bellied Glider, which are easily identified by their calls. More difficulty was experienced in finding other species—Sugar Glider and Feathertail Glider—because both of these are so small that considerable patience and intense listening were necessary to locate them.

Ground mammals are difficult to observe by spotlight and twelve cage-traps were used to collect them. The wire-mesh traps were 14″ x 8″ x 7″ in size and were baited with a mixture of peanut butter, oatmeal and honey. All animals caught were unharmed and were released in the area of capture, except for an Allied Rat and a Brown Phascogale which were lodged with the Department of Fisheries and Wildlife. The traps were set each afternoon wherever there was evidence of ground mammal activity and each morning the traps were collected and the catches recorded and released. Each night a different area was trapped and care was taken not to disturb traps during the night. The easiest places to trap were along creek

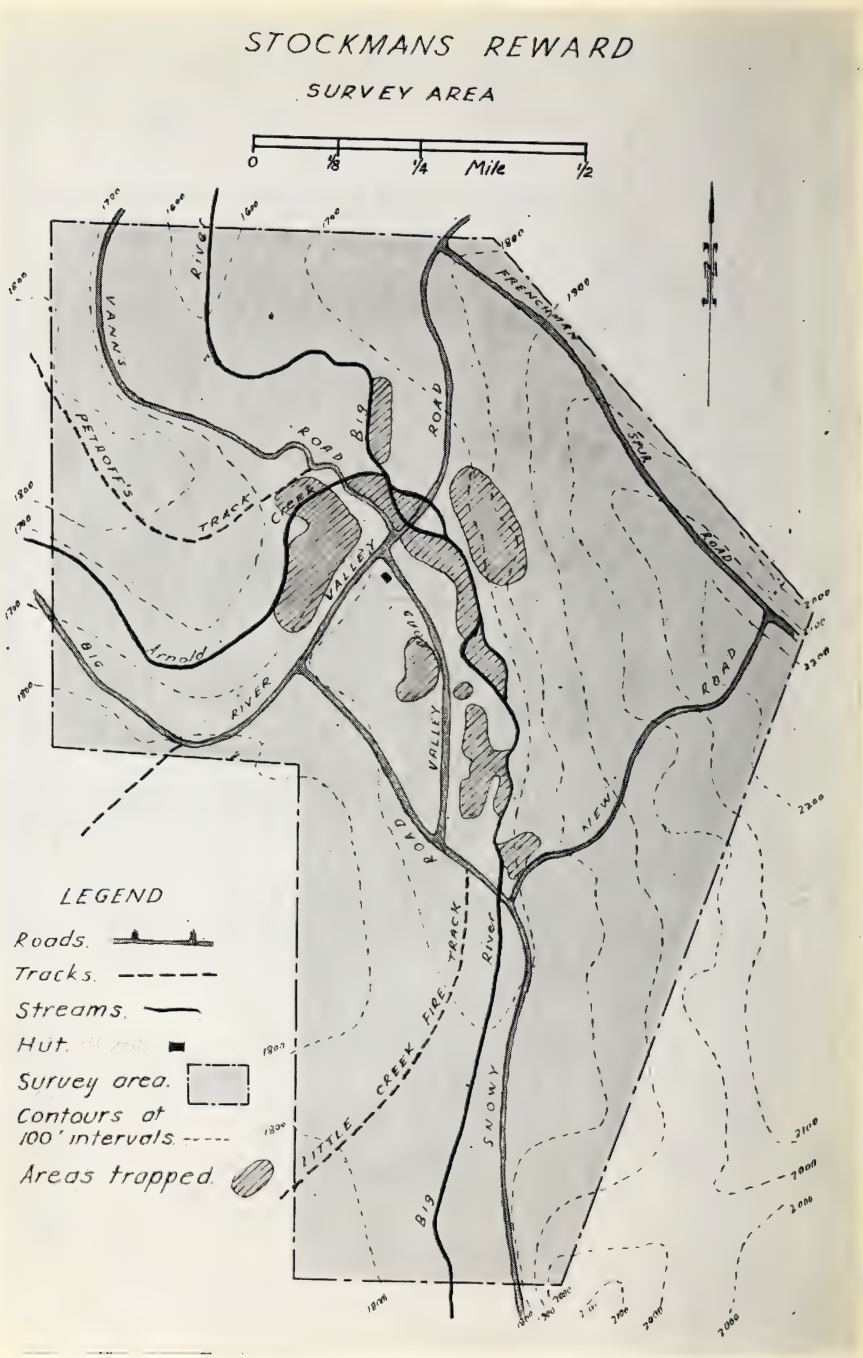
STOCKMANS REWARD
SURVEY AREA
0
1/8
1/4
Mile
1/2
VANNS
RIVER
PETROFF'S
TRACK
ROAD
BIG
CREEK
VALLEY
ROAD
FRENCHMANS
ROAD
Arnold
RIVER
BIG
ROAD
VALLEY
ROAD
NEW
LITTLE CREEK FIRE TRACK
SNOWY
River
BIG
LEGEND
Roads.
Tracks.
Streams.
Hut.
Survey area.
Contours at 100' intervals.
Areas trapped.

Figure 1

banks where there was an abundance of runways and burrows, but elsewhere it was necessary to search on hands and knees for good trap sites.

Walks during the day provided valuable indications of the mammals in the area. Wallabies were sighted only during the day and two Wombat skulls and a Brown Phascogale skeleton were found during day trips. Tracks and faeces of dogs were seen often and fox faeces and a large patch of red fur from a fox were found. Powerful Owls were present in the area and their disgorged pellets of undigested fur and bones were examined whenever they were found.

Results

The results of the survey are given in Table I. The most numerous mammal in the valley was the Greater Glider. These showed a preference for the young gums, even though they are noted Peppermint eaters. Consequently only six of the thirty-seven sightings were on the hills. Several were seen gliding at Stockman's Reward, often between trees about ninety yards apart.

One Yellow-bellied Glider was heard calling on several occasions and was seen once when it glided from a Swamp Gum for about ninety-yards to a Manna Gum, in the centre of the

TABLE I

Survey Results

(a) *Sightings*

Common Name	Proper Name	Number recorded	
		1967	1968
Greater Glider	*Schoinobates volans*	27	10
Yellow-bellied Glider	*Petaurus australis*	1	0
Sugar Glider	*Petaurus breviceps*	2	1
Feathertail Glider	*Acrobates pygmaeus*	3	1
Bobuck	*Trichosurus caninus*	3	5
Ringtail Possum	*Pseudocheirus peregrinus*	4	12
Platypus	*Ornithorhynchus anatinus*	1	0
Eastern Water Rat	*Hydromys chrysogaster*	0	1
Brown Phascogale	*Antechinus stuartii*	0	11
Allied Rat	*Rattus fuscipes assimilis*	0	20
Black Wallaby	*Wallabia bicolor*	0	5
Bats	Two unidentified species	—	—

(b) *Other evidence*

Common Name	Proper Name	Form of Evidence
Wombat	*Vombatus hirsutus*	Skulls (2), burrows, faeces, tracks
Brown Phascogale	*Antechinus stuartii*	One skeleton (1967)
Rabbit*	*Oryctolagus cuniculus*	Faeces, burrows, skeletal remains
Fox*	*Vulpes vulpes*	Faeces, tracks, fur, smelled several times
Dog*	*Canis familiaris*	Tracks, faeces, heard howling

* Introduced species

flood plain. As these animals are generally uncommon and are seminomadic, it seems probable that the area was visited by them regularly.

Because of the difficulty of spotlighting smaller animals only three Sugar Gliders were observed. These were seen beside the Big River Valley Road and at Arnold's Creek, within about three hundred yards of each other. Similarly, three Feather-tail Gliders were seen during the 1967 trip, all in the one tree in the middle of the valley and one was seen in 1968 on the hill beside The Big River Valley Road in a Peppermint tree.

The Bobucks present in the survey area were all silver-grey in colour (the "Mountain Blue" of the locals), and the Ringtail Possums were a beautiful rufous colour on the sides and forelimbs, and had fluffy white ear tufts.

Eight Bobucks were seen altogether, and of these, only two were seen in the hills. Sixteen Ringtail Possums were seen and were fairly evenly spread between valleys and hills.

The Water Rat and Platypus are both shy animals and are a rare find at any time. The Platypus was seen in The Big River near the junction of Snowy Road and New Road in 1967 and the Water Rat was found walking up The Big River Valley Road in broad daylight.

Noises attributable to macropods were heard during the 1967 trip, but none was seen until 1968. Five Black Wallabies were observed during the day on hills near Frenchman's Spur and Little Creek fire trail.

The ground animals, Allied Rats and Brown Phascogales could only be observed by trapping. Although thirty-five of the total of ninety-one trap-nights were on the hills, no animals at all were collected there. The rest of the time traps were set in the valley and thirty-one animals—twenty Allied Rats and eleven Brown Phascogales—were collected. All these were caught where there was thick ground cover of Blackberry, Tussock Grass or Long Matt Rush, or beside holes in creek banks. Traps set beside burrows always caught animals, even a small wren was trapped.

Many bats were seen hawking for insects on the warm nights, but the species could not be identified. Shot guns or mist nets are essential items for the collection of bats and as these were not available no bats were collected.

Dogs were common in the area, as many tracks and faeces were found. A lot of deer hunting occurs near the area and hounds are lost, turn wild and form packs. One of these packs was heard howling like dingoes near the top of Petroff's Track.

Conclusions

The differences in the numbers of individuals recorded in 1967 and 1968 are, in general, not significant. However, the difference in the number of Greater Gliders seen on each trip was probably significant. Even this habitually wet area dried out excessively during the drought and many of the eucalypts on the hills died. In the valleys undergrowth was killed and the young gums, the main supply of food for the Greater Gliders, dried out considerably. As the Greater Glider population in 1967 was quite concentrated, some had to leave to find new areas of food trees and this could explain the fewer sightings of Greater Glider in 1968. Ringtail Possums probably have a less specific diet than the Greater Glider, their food trees being more abundant and less affected by the drought. Thus, as more Greater Gliders moved out, more Ringtail Possums were observed.

The hills were affected much more than the valleys by the drought and

this could explain why few animals were recorded there. On the hills there was much less ground cover and probably less food, consequently no rats or phascogales were trapped there. There were however, more occupied Wombat burrows in the hills than in the valley.

It is a common habit for Black Wallabies to frequent gullies in hot weather, but in cold weather they generally move to the higher ridges and they were only seen on hills in the survey area.

Acknowledgments

The authors express their thanks to the following persons who helped throughout this investigation; Messrs. A. L. Temby, A. R. Jackson, P. Jackson, C. N. Fryer, P. Martin, J. Cummins, and D. Nance. Miss H. J. Aston and Mr. R. V. Smith of the National Herbarium helped with plant identification. The Mammal Survey Group, F.N.C.V., provided equipment and the Fisheries and Wildlife Department provided permits to handle protected species. Dr. J. W. F. Hampton and Mr. J. H. Seebeck read the manuscript.

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Summary

Twelve native and three introduced species of wild mammals were found to occur at Stockman's Reward. The individual count was one hundred and ten individuals. In addition, two species of bats were seen but were not identified.

Book Reviews

Australian Sea Shells

By John Child

(Published by Cheshire-Lansdowne in the Periwinkle series)
Lightweight cardboard cover, approx. 5″ x 7¼″. 80 pages and 16 pages of colour plates, with 20 half-tone plates and more than 100 in-text line drawings. Price $1.25.

This is an enlarged and re-set 4th edition of a book originally published in 1959. After an introductory chapter explaining the classification of molluscs, their importance to man, notes on their distribution and ecology and an explanation of some of the scientific names, the remaining five chapters are devoted to the main groups of sea shells. In all 108 species are described, figured as line drawings and an idea given of their habitats and distribution in Australia. These latter features are perhaps the most useful parts of the book.

However, much more care should have gone into the preparation of this book as it contains a number of errors, some quite serious. For instance, there is one entire colour page of six plates, which have been printed in reverse so that all the shells appear sinistral; a number of the colour illustrations have the wrong captions, and in the text, the arrangement is such that *Gena impertusa* appears to be included in the Haliotidae instead of the Trochidae. The colour plates are poor, both in the choice of specimens, many of which are plainly beach-worn, and in the

colour reproduction which, in some cases, makes the species almost unrecognizable. The choice of species, too, is hard to follow, as many quite rare molluscs are dealt with quite fully while some very common species are omitted. Regrettably, therefore, it must be concluded that this book does not fulfil its intended role and cannot be recommended.

BRIAN J. SMITH,
Curator of Invertebrates,
National Museum of Victoria.

Australian Seashore Life

By JOHN CHILD

(Published by Cheshire-Lansdowne in the Periwinkle series)

Lightweight cardboard cover, approx. 5″ x 7¼″. 87 pages and 16 pages of colour plates, with 35 half-tone plates and many in-text line drawings. Price $1.25.

The stated intention of this book is to give the person with no previous knowledge an insight into the different groups of animals he is likely to come across on the seashore and a little information about how they live, with the emphasis being placed deliberately on the less well-known groups. It commences with a general introductory chapter on life in the sea, dealing briefly with such topics as tides, zonation, food and feeding habits, and a few words on scientific classification. This is followed by 12 chapters dealing in turn with the main group of plants and animals commonly found living between the tides. These give an account, in a general way, of the major characteristics of the group and attempts to answer in a simple way some of the queries people have when meeting a strange animal for the first time; such as, how does it feed and what does it eat; how does it breed and what do particular structures do. It does not, however (nor for its size is it reasonable to expect that it should), supply descriptions of particular species, although in some cases specific examples are used. It must therefore be looked on as a very elementary marine biology textbook rather than a field guide.

The choice of specimens and the reproduction of the colour plates are, on the whole, good and not only make the book more attractive, but are also very useful for a better understanding of the text. The half-tone plates are of a less high standard and suffer from inconsistent treatment in the information provided in the legends, where, in some, the species name is used, while in others the common name is all that is given. Worthy of special mention are the series of colour plates of anemones and the magnificent colour photograph of a flatworm showing much of the internal anatomy.

In general the book achieves its stated aims and despite the unavoidable errors through over-simplification, should prove to be of use in giving the novice some insight into the way of life of the animals and plants to be found on the seashore.

BRIAN J. SMITH,
Curator of Invertebrates,
National Museum of Victoria.

Field Naturalists Club of Victoria

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Excursion Sec.—M. Allender
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A. Fairhall
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A. Lewis
J. Strong
I. Morrison
J. Curliss

Note change from Monday to Wednesday night for March Annual Meeting.

Honour to W. Roy Wheeler

We extend our sincerest congratulations to Roy Wheeler, on learning of the conferring of the M.B.E. upon him in the New Year Honours List—a fitting honour for a worthy person.

Author Index for Victorian Naturalist

With the completion of this index, all members are indebted to Mr. J. Baines for the amount of work which he has done to produce this most valuable index. It is in the form of a card system, which can be kept up to date, and will be placed in the F.N.C.V. library for reference by members.

F.N.C.V. Publications Available for Purchase

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General Meeting *13th January 1969*

About 100 members were present and Mr. E. R. Allan presided.

Christmas Greetings cards were displayed from the patron of the club, Sir Rohan Delacombe, Mr. Vic. Miller, the S.G.A.P., The Fauna Survey Group, and Ringwood F.N.C.

The Secretary announced that he had received the annual report of the Benalla F.N.C., and the second report of the World Wild Life Fund—an excellent publication. He had been asked to hand it on and spread the idea of Conservation. Separate copies could be obtained for $3, plus postage. The President read a letter from Miss Florence Smith—an honorary member—who said she had resolved to pay her subscription still, and enclosed $7.

Mr. Allan said the Victorian Cabinet had shelved the idea of the proposed restaurant in the Botanic Gardens because it was too expensive.

Mr. Hanks introduced the speakers for the "Members' Night".

Mr. P. Curliss discussed "Twins and Triplets" from *Cassia artemisioides* seeds which he germinated (after soaking) on blotting paper in plastic boxes where they were visible. The first to germinate put out three rootlets. Then three little shoots appeared above.

Another seed put out two shoots when the seed coat was removed, two distinct specimens were seen in the same seed coat.

After the cell in the ovule was fertilized by the pollen nucleus, the first divisions of it must have separated to produce distinct and separate embryo plants. One of the twins or triplets grew larger than the others.

Miss J. Forse showed examples of animal specimens preserved and prepared in a new way.

A small fish (after scaling) was soaked in alcohol, then in 1% potassium hydroxide for a week, making the flesh transparent. Then it was put in a dye to show the bones, and then in glycerine. The bones all showed up as clear red. A Japanese salamander (a prohibited import) was kept in the potassium hydroxide for 8 weeks before dyeing.

Fatty specimens are soaked in acetone first to get rid of fat.

Mr. A. H. Fairhall spoke of summer flowering native plants. He said that 2½ years ago the Council had appointed him to represent the club on the Committee of Maranoa Gardens, and for the first time he had asked a favour for some specimens to illustrate the talk. Most of the examples belong to Proteaceae and Myrtaceae.

Of the Proteaceae, grevilleas showed bright colours including *Grevillea robusta* (silky oak), *G. hilliana* (white silky oak), *G. sericea, G. banksii, G. asplenifolia,* the hybrid *G. poorinda constance,* and 18 other species of Grevillea.

Two banksias, *Banksia serrata* (Saw Banksia) and *B. speciosa* (W.A.), *Conospermum mitchellii* and a blue one from W.A., *Lambertia formosa* (Mountain devil or honey flower) N.S.W., *Lomatia ilicifolia, L. longifolia, L. frazeri,* and the N.S.W. *L. silaifolia* (Wild Parsley), *Hakea multilineata, Persoonia pinifolius, Stenocarpus sinuatus* which has been flowering since the nature show.

Of Myrtaceae, many melaleucas flowered in summer including *Melaleuca hypericifolia, M. laterita, M. longicoma, M. nematophylla, M. nesophila, M. thymifolia, M. pulchella, M. erubescens, M. squarrosa, M. ericifolia, M. pubescens, M. styphelioides, M. linariifolia, Callistemon speciosus, C. phoenicius, C. sieberi, Calothamnus quadrifidus, Chamaelaucium uncinatum, Darwinia citriodora, Eucalyptus ficifolia, E. torquata, E. tetraptera, E. desmondensis, Kunzea sericea, Regelia inops, Astartia fascicularis, A. hederanthera, Baeckea virgata, Leptospermum citratum, Beaufortia sparsa, B. eriocephala.*

Species of other families included *Istoma axillaris, Bursaria spinosa, Brachychiton populneus, Westringia glabra, Viola hederacea, Anigozanthos flavida, A. pulcherima, A. rufa.*

Most of the above were exhibited in flower.

Mr. A. J. Swaby spoke of modifications of the carrot family—Umbelliferae (or Apiaceae), and these were illustrated by projected slides—the family having typically a compound umbel and the two fruitlets (mericarps) pressed together.

The little native carrot and the Alpine celery (Aciphylla), the *Trachymene humilis* on the high plains, the flannel flower with its tightly packed umbels surrounded by flannel-like bracts, the little water plant, *Hydrocotyle muscosa,* the Southern Cross plant of W.A., and the "blue devil" all showed umbels.

An extreme modification in the Rose family was illustrated by the bidgee

widgee which has clumps of hooked fruits.

Mr. T. North showed "Remarkable Rocks" on Kangaroo Island. Most of the island is sandstone and limestone, but there is granite on one end, and on it these remarkable rocks showing stark irregular angles and curves like giant bites having been taken out of them.

Miss P. Carolan spoke of a trip to Central Australia, and showed a view of the Alice Springs Lake and young river red gums (*Eucalyptus camaldulensis*) in three stages of growth after three good seasons of rain—one stage 2 ft. high, a second stage a inches high, and tiny purplish newly germinated ones in thousands in Trephina Gorge. Another picture showed the shapely bellfruit tree (Codonocarpus) which is growing "like weeds" in Central Australia. It is short lived and bowed down with the weight of its fruits on top.

A beautiful slide of a desert oak showed a thick carpet of wild flowers under it.

A pet baby dingo was considered by the owners to "be alright because they had no chooks".

Semi tame pied butcher birds, bower bird and bower, aborigine ochre pits of soft rock for the yellow and red drawings, some horizontal and vertical parallel line drawings in Emily Gap, and other kinds showing nicks out of the rock probably indicating direction signs near Ross River, were all illustrated by fine color slides.

Mrs. North described an aborigine cave near Myrtleford which she saw while passing through a farm (with permission) about five or six miles N.W. of Myrtleford to the edge of the State forest. The cave was found about 10 years ago. It is a granite rock overhung and shows human figures and birds' feet.

Mr. Eric Allan showed pictures of Phillip Island, of the area—The Nit—where there had been a proposal to build a hotel motel, and which would have involved the destruction of the mangrove swamp which is a fine breeding place for water birds. The Rhyll Swamp breeding ground is protected by the Fisheries and Wildlife Dept. and is surrounded by a dog-proof fence.

He showed other pictures taken at the Nobbies including sea hares, one a dark one with a light one attached to it, a mutton fish (Haliotis), a rock with sea elephants, sea stars, tube worms and sea urchins, and a brittle star. A slide of seal rocks showed a great population of seals where six Fisheries and Wildlife officers are studying them.

Miss Jean Woollard spoke on "It is 1969". She stressed the need to preserve trees and vegetation generally and their connection with the essential oxygen supply. Fine pictures included snow gums, Aciphylla with insects, Rocky Valley Dam in autumn, Candlebark trees, shrubs on the Anglesea Coast, fern gullies, trees at Bulga Park, the entrance of the Darby River and the Tongue Point at the Promontory.

Mr. Ian Morrison showed excellent spider pictures including a jumping spider eating a housefly, the golden orb web spider and web, and a wolf spider for which he drilled a hole in his lawn. The spider took possession and made a silky lining and then a mat of gossamer outside the hole and on it laid 40 or 50 eggs and rolled it around to make a sac which she periodically held up to the sun.

Mr. A. E. Brooks described with beautiful slides the W.A. Christmas bush —a partly parasitic tree, the roots of which pigs dig up to get the milky sap.

Red kangaroo paws at Esperance, a red flowering gum, The Christmas bush at Tanjil Bren, and snow daisies 4000 ft. on Mt. Baw Baw. Brighter pink Trigger plants and orange billy buttons were characteristic of the heights.

Miss May Moon brought slides of the wattle at the Whipstick, plover's eggs camouflaged on the ground, Umberumberka river gums, Mulga ants' nest between the Olgas and Ayers Rock, Sundew devouring moths in the water on rocks at Katherine Gorge, rock paintings at Katherine Gorge, and a Gannet sanctuary at Cape Kidnappers, Hawkes Bay, N.Z., with 4000 nests. At sixteen weeks of age, they set off for Australia. They have been found in Australia eight days after banding in N.Z.—a journey of 1500 miles. She also showed a beautiful *Rhododendron lochae* in her garden, and a messmate with the glow of sunset in its upper branches.

Eckberg's Nursery has asked if anyone in the club has raised ferns from spores.

Exhibits

Mrs. North—Polished Beach Stones from N.S.W. near Newcastle.

Miss North—Fossil Shells from Warding Island.

Mr. Lewis—Fossil Wood from W. Tree.

Mr. A. E. Brooks—*Sollya fusiformis* Syn *S. heterophylla* (climbing bluebell). *Marianthus erubescens* (W.A. climber). *Hibiscus huegelii* (lilac hibiscus W.A.). *Correa decumbens* (S.A.).

Mr. A. J. Swaby—*Goodenia elongata* (Lanky goodenia, common around Melbourne). *Pratia surrepens* (a pollen plant and a seed plant). *Hydrocotyle muscosa.*

Mr. A. H. Fairhall brought specimens of most of the summer flowering natives referred to above.

Mr. D. McInnes brought two stereoscopic microscopes and showed rock sections and sori of fern in stereoscopic polarized light. He hoped that the club may procure three of these stereoscopic microscopes if members agreed they were useful. He also showed fossil leaves from Ten Mile Creek at Narracan.

Mrs. Woollard drew attention to 3AR repeat broadcasts at quarter past ten on Thursday nights on the wildlife of Eastern Australia.

.Mr. Lewis stressed the need to protect the promontory in the Botanic Gardens Lake by mass pressure from people.

Mr. J. Strong suggested that a letter of congratulation be sent to Mr. Roy Wheeler on the award of the M.B.E. The President said it would be sent.

Mr. J. Ros Garnet said that through pressure by the Fauna Protection Council, the head bounty on the wombat was removed for three years as an experiment. It is now time for members to press for the removal of the wombat from the list of vermin. The control of the wombat should be a function of the Fisheries and Wildlife. He asked that the Minister of Lands be written to, suggesting the entire removal of the wombat from the list of vermin.

Mr. J. Baines said that not long before Mr. Coghill handed over his material to the new Secretary he mentioned that three men had compiled a list of all authors to the "Naturalist" up to 1953. He handed the list to Mr. Baines who has been gradually bringing it up to date to this year. He has put it in the Field Naturalist Library in the form of a card index for reference by members. He found a vast list from 1884 to today including many wonderful naturalists. He then read out the numbers of contributions that many naturalists had been listed with.

The President expressed appreciation to Mr. Baines for this splendid work.

Mr. Garnet reminded members that in former days Mr. Colliver would have "At Homes" getting the index together.

Marine Biology & Entomology Group
2nd December 1968

The meeting was chaired by Mr. Condron, 23 members being present.

Mr. McInnes reported that he had recently visited Kilcunda in the Gippsland area, and thought that it would be a suitable beach for a marine biology excursion at a future date. It was decided that the Secretary obtain information as to suitable tides in February and March, and that Miss Allender, Tours Secretary, be approached with the suggestion that a Club outing be held in that locality some time early in the new year.

The chairman announced that this Group would not meet in January 1969. Next meeting to be on 3rd February, which will be a members' night.

Mr. Strong reported on an outing he had made with the Underwater Research Group, who are making an ecological survey of Westernport Bay. A rare species of seaweed, Claudea Elegans, was obtained. Mrs. Watson, Secretary of the above Group, said that so far this species had only been found in Westernport Bay, Vic.; The Tamar Estuary, Tasmania; and The Bay of Bengal, India.

EXHIBITS

Mr. McInnes showed, under his microscope a bright-red species of Briazoa. showing the polyps extended, and some species of Ascidians. He gave a short talk on both. Also a species of Arachuida, Order Pantopoda. Mr. McInnes explained that all species of this family were marine, and are found crawling slowly over seaweed.

Miss Forse showed a fish preserved in alcohol, stained, and then immersed in a mixture of glycerine and water. It was transparent, thus enabling its bone structure to be studied.

Mr. Condron gave a short talk on an entomological excursion he had made to Frankston, when he collected some species of Hesperidae (Skipper butterflies), and also some Caper Whites.

Mrs. McInnes showed a species of spider, and a species of moth, both unidentified.

Mrs. Lee showed a species of "Sea-louse" taken from the mouth of a fish.

F.N.C.V. DIARY OF COMING EVENTS

GENERAL MEETINGS

Monday, 10 February—At National Herbarium, The Domain, South Yarra; commencing at 8 p.m.

1. Minutes, Reports, Amendments.
2. Correspondence.
3. Subject for the evening—"Echidnee". Dr. E. M. H. Ealey.
4. New members

(a) *Ordinary*:

Mrs. M. I. Hampton, 8 Station Street, East Kew 3102.
Miss Isobel Burns, Flat 9, 70 Hawksburn Road, South Yarra 3141.
Mr. Denis R. Penton, 43 Duke Street, Richmond 3121. (Interest: Conservation of native fauna and flora.)

Joint Ordinary:

Mr. and Mrs. F. R. B. Denton, 5 Albert Jones Court, Eaglemont 3084. (Interest: Australian flora and fauna.)

Country:

Mr. R. A. Young, Sheans Creek, Via Euroa, Vic. 3666.
Mr. Ian Staples, Parada Research Station, P.O. Box 60, Mareeba, Q'ld. 4880.
Mrs. J. Roche, 79 Clive Street, Shepparton, Vic. 3630.
Mr. A. Heislers, Forests Commission, Daylesford, Vic. 3460.

5. General Business.
6. Nature Notes and Exhibits.

Wednesday, 12 March—Annual Meeting with Presidential Address.

F.N.C.V. EXCURSIONS

Sunday, 16 February—Kilcunda. Marine Biology and General, leaders Mr. D. McInnes and Mr. J. Strong. The coach will leave Batman Avenue at 9.30 a.m., fare $2.00. Bring two meals.

29 August-21 September—Western Australia. As sufficient members have shown interest in this excursion to make it possible, bookings will now be accepted. Will members who have given their names tentatively to the excursion secretary please confirm them, and send a deposit of $50.00 by 20 March. After this date any unconfirmed bookings will be removed from the list, and bookings taken from members who have not already indicated a desire to join the excursion. Details of the excursion will be published later, but the plan is to go as far as Northampton, then down to Albany, across to Busselton, and back to Perth. Travel will be by train to and from Perth, with a chartered bus for the tour in W.A. Accommodation will be mainly on D.B.B. basis, and members will be responsible for their own lunches. At this stage it is impossible to give a definite cost for the excursion, but it should be approximately $260.00. Bookings should be made with the excursion secretary, Miss M. Allender, 19 Hawthorn Avenue, North Caulfield 3161; and all cheques made payable to "Excursion Trust".

GROUP MEETINGS

(8 p.m. at National Herbarium unless otherwise stated.)

Thursday, 13 February—Botany Group. "Nature in Sth. Africa"—Mr. W. Woodman.

Wednesday, 19 February—Microscopical Group.

Friday, 28 February—Junior meeting at 8 p.m. at Hawthorn Town Hall.

Monday, 3 March—Entomology and Marine Biology. This meeting will be held in Mr. Strong's rooms in Parliament House at 8 p.m. Enter through private entrance at south end of House.

Wednesday, 5 March—Geology Group.

Thursday, 6 March—Mammal Survey Group at Fisehries and Wildlife Department.

Friday, 7 March—Junior Meeting at Rechabite Hall, 251 High St., Preston.

Field Naturalists Club of Victoria

Established 1880

OBJECTS: To stimulate interest in natural history and to preserve and protect Australian fauna and flora.

Patron: His Excellency Major-General SIR ROHAN DELACOMBE, K.B.E., C.B., D.S.O.

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Group Secretaries:

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Geology: MR. T. SAULT, 9 The Avenue, West Rosebud.

Microscopical: MR. M. H. MEYER, 36 Milroy Street, East Brighton (96 3268).

Mammal Survey: MR. P. HOMAN, 40 Howard Street, Reservoir 3073

Entomology and Marine Biology: MR. J. W. H. STRONG, Legislative Council, Parliament House. Melbourne 3002.

MEMBERSHIP

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